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C. A. MILLER.

CHEMICAL FIRE EXTINGUISHER.

APPLICATION FILED OCT. 12, 1904.

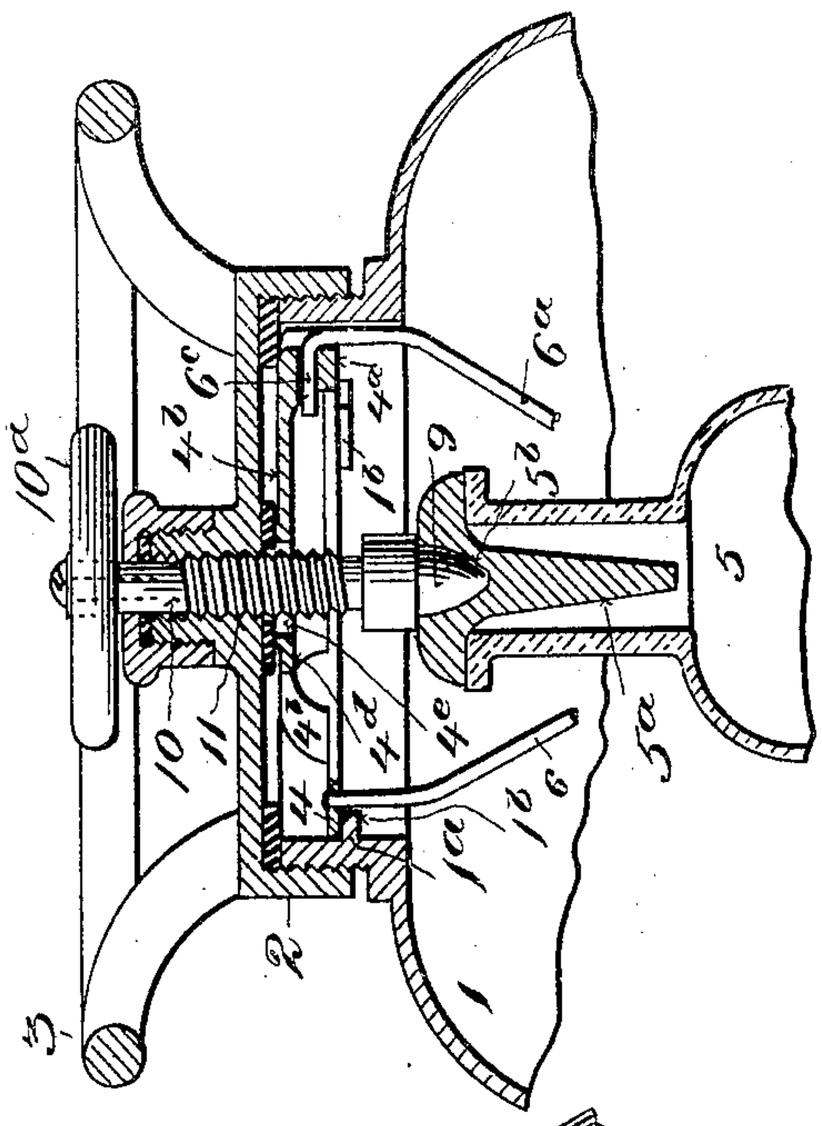


Fig. 1.

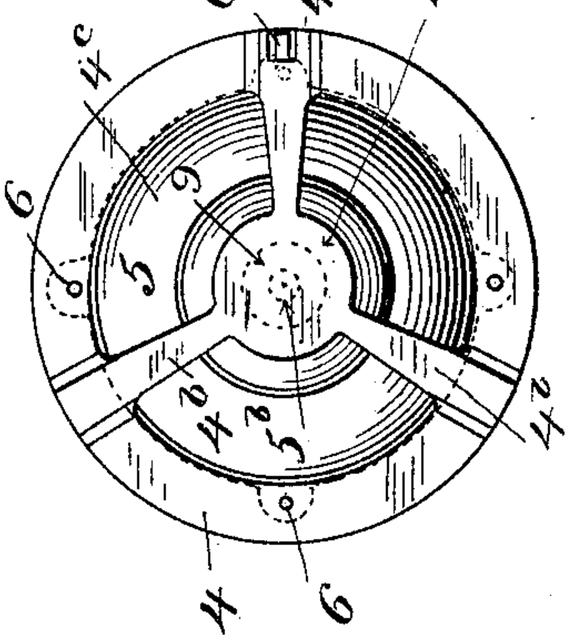


Fig. 3

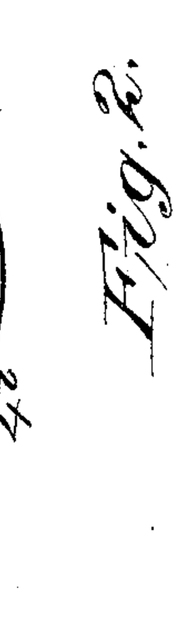
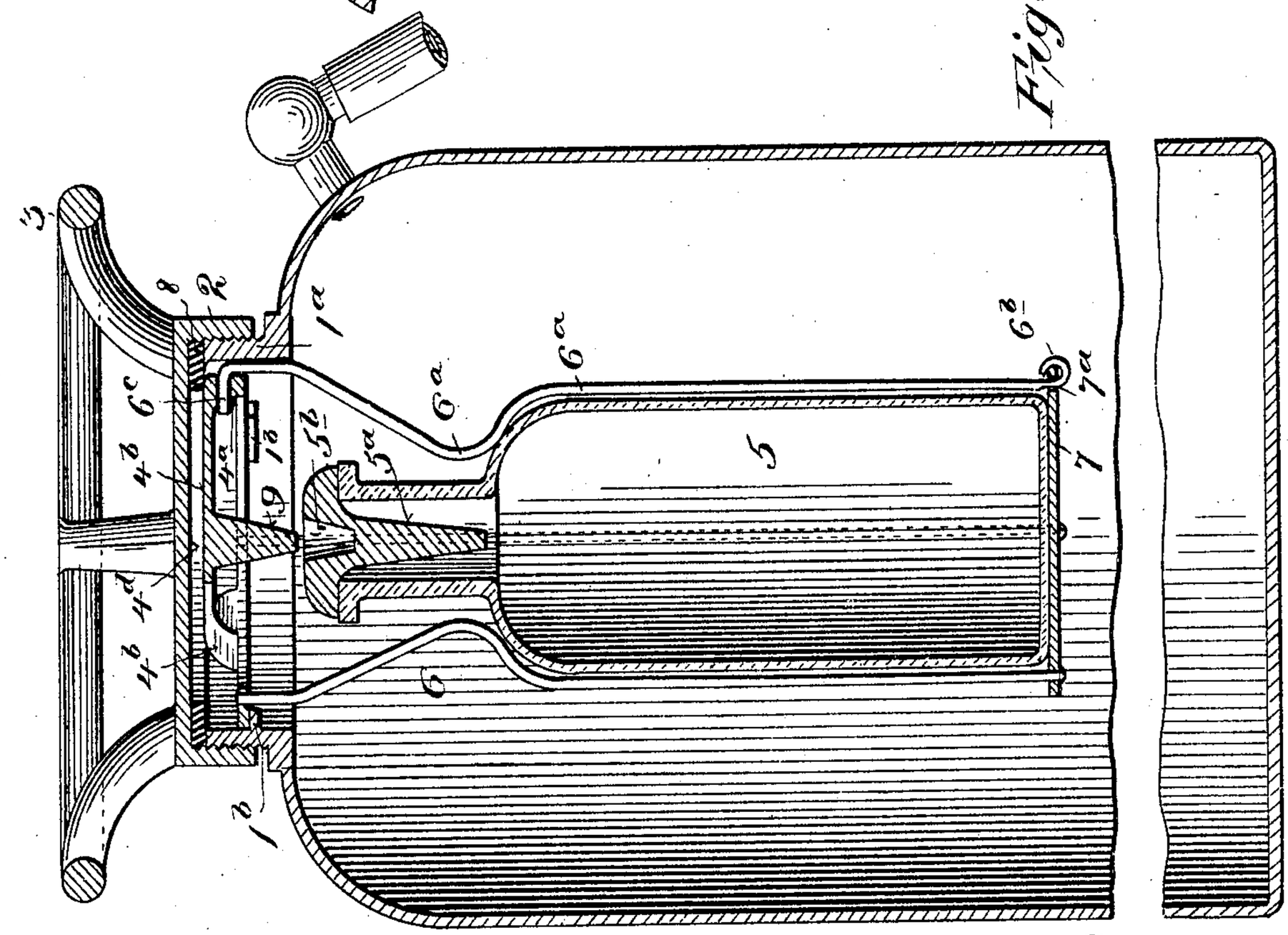


Fig. 2.



Witnesses
C. W. Benjamin
M. Hollingshead

Inventor
Chas. A. Miller.
By his Attorneys
F. F. Bourne

UNITED STATES PATENT OFFICE.

CHARLES A. MILLER, OF NEW YORK, N. Y.

CHEMICAL FIRE-EXTINGUISHER.

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Application filed October 12, 1904. Serial No. 228,108.

To all whom it may concern:

Be it known that I, CHARLES A. MILLER, a citizen of the United States, residing in New York city, borough of Manhattan, New York, have invented certain new and useful Improvements in Chemical Fire-Extinguishers, of which the following is a specification.

My invention relates to improvements in the class of chemical fire-extinguishers in which a bottle or the like is suspended within an outer tank or casing in such manner that when the extinguisher is inverted the contents of the bottle will mingle with the contents of the tank to produce a fire-extinguishing gas.

My invention has reference to improved means for holding the bottle or the like within the tank, so that the bottle may be readily removed for filling; and a further object of the invention is to provide for guiding the stopper of the bottle and for regulating its movement when the extinguisher is inverted.

The invention comprises the novel details of improvement that will be more fully hereinafter set forth and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part hereof, wherein—

Figure 1 is a central sectional view of a fire-extinguisher embodying my invention. Fig. 2 is a plan view of the bottle-holder; and Fig. 3 is a sectional view of the upper part of the extinguisher, showing means for removably holding a stopper upon the bottle-neck.

In the drawings, in which similar numerals of reference indicate corresponding parts in the several views, the numeral 1 indicates a tank or outer shell of the extinguisher, which is provided with a cap or cover 2, shown connected therewith by screw-threads and having a rim or handle 3, all of which may be of well-known construction. Within the neck 1^a of the tank 1 is a support, which may be in the form of lugs 1^b or an annular flange, upon which rests the ring 4 of the bottle-holder or inner acid-retainer. As shown, rods or arms 6 depend from the ring 4 and have a plate or support 7 at their lower ends, upon which the bottle 5 rests, and the rod 6^a is movably connected with the ring 4 and with the plate 7, so as to permit the bottle to be inserted in and removed from the holder. As shown, the plate 7 has a hole 7^a, receiving the bent end or eye 6^b of rod 6^a, whereby the latter is swiveled on the plate 7, and the upper end of rod 6^a is bent inwardly or has a projection at 6^c to enter a hole or recess 4^a, which enters the ring 4 from its outer edge, the part 6^c thus bearing upon the ring to assist in supporting plate 7 and bottle 5. As the ring 4 rests within the neck 1^a of the tank the arm 6^a is confined at its upper end between said neck and the ring 4, thereby holding the bottle firmly within the holder, and when the bottle-holder is removed from the tank by drawing it out through the open end or neck of the latter the arm 6^a can be swung outwardly to permit ready removal of the bottle, and when the bottle is replaced in the holder the arm 6^a is swung back to engage ring 4, and when the holder is lowered into the tank the arm 6^a holds the bottle securely in the holder or retainer, as in Fig. 1. The ring 4 is provided with a plurality of inwardly-extending arms 4^b, having openings 4^c and a central closed part 4^d, overlying the stopper 5^a, whereby arms 4^b serve to permit the use of the fingers in manipulating the ring 4, and the part 4^d keeps the stopper from falling out of the bottle. The arms 4^b are shown raised from the plane of the ring 4 to about on a line with the upper edge of neck 1^a, so that the washer 8, between cap 2 and the edge of the neck 1^a, bears upon said arms to hold the ring 4 firmly upon the supports 1^b, whereby when the extinguisher is inverted the bottle holder or retainer will be held firmly in position. If the washer 8 were dispensed with, the top of cap 2 could bear on arms 4^b to keep the ring 4 in position.

The arms 4^b or the central part 4^d is shown provided with a projection 9, alined with the stopper 5^a, which latter is provided with a recess 5^b to receive said projection in the normal position, as shown in Fig. 1, the projection being at a distance from the stopper to permit free movement of the stopper when the extinguisher is inverted. By this means the stopper has movement for a distance from the bottle-neck and rides on the projection 9, which centers the stopper and prevents the stopper from falling away from the bottle-neck, so that when the extinguisher is again set upright the stopper will slide back in the bottle-neck to the proper position, the stopper being longer than the distance it is permitted to move from the bottle-neck by the projection 9. Instead, however, of having the projection 9 rigidly carried by the arms 4^b said projection may be movably carried with respect to the stopper, and for this purpose I have shown said projection as carried at the end of a threaded rod or stem 10, provided

with a handle 10^a, the threads on said rods meshing with threads 11, carried by the cap 2, the part 4^d in this case being provided with an opening 4^e for the ready movement of the screw-rod 10. This form of device is useful where the extinguisher is to be carried around for use, as upon fire engines or trucks or on boats or other vehicles, as the projection 9 can be screwed down against the stopper to hold the same firmly upon the bottle-neck, and thus prevent the contents of the bottle from spilling by reason of the shaking of the extinguisher, and when the extinguisher is to be used the projection 9 can be withdrawn from the stopper as much as desired to permit the contents of the bottle 5 to flow out in the proportion desired for producing gas more or less quickly, thereby overcoming the danger of the sudden generation of excess pressure in the tank.

Having now described my invention, what I claim is—

1. A fire-extinguisher comprising a tank provided with a neck, a ring having depending arms, and a bottom plate connected therewith forming a bottle-holder, means to support the ring, one of said arms being detachably connected with said ring, said neck serving to prevent displacement of said detachable arm, substantially as described.

2. A fire-extinguisher comprising a tank, and a ring having depending arms and a bottom plate connected therewith forming a bottle-holder, one of said arms being movably connected with the plate and having an upper projecting portion, the ring being provided with a recess receiving said bent portion of the arm, whereby the arm may be confined between the ring and the neck of the tank, and means for supporting said ring, substantially as described.

3. A fire-extinguisher comprising a tank provided with a neck, and a ring provided with a depending bottle-holder to pass into the neck, said ring having arms that are above the bottom of the bottle-holder and extend inwardly providing spaces to permit handling the arms, substantially as described.

4. A fire-extinguisher comprising a tank provided with a neck, a ring supported at the neck and provided with a downwardly-extending projection disposed centrally of the ring, arms depending from the ring, a bottom plate connected with said arms, one of said arms being detachably connected with the ring, said neck serving to prevent displacement of said detachable arm, and a bottle having its neck below the ring and provided with a stopper having an upper recess alined with said projection, substantially as described.

5. A fire-extinguisher comprising a tank having a neck, a ring supported within the neck and provided with arms extending inwardly, arms depending from the ring forming a bottle-holder, means for removably holding a bottle in said holder, a cap over the neck of the tank, and a washer interposed between the cap, the neck and the arms on the ring, substantially as described.

6. A fire-extinguisher bottle-holder comprising a ring, arms depending therefrom, a support attached to the lower end of the arms, one of said arms being movably attached to said support, the opposite end of said arm being bent, said ring having a recess receiving said bent end of the arm, and means for movably connecting said arm with said ring, substantially as described.

7. A fire-extinguisher comprising a tank provided with a neck and a bottle-holder adapted to pass into the neck, said holder being provided with arms suitably spaced to permit handling, substantially as described.

8. A fire-extinguisher comprising a tank provided with a neck, a ring adapted to pass into the neck, a bottle-holder depending from the ring, and arms on the ring, said arms being suitably spaced to permit handling, substantially as described.

9. A fire-extinguisher comprising a tank provided with a neck, a ring adapted to pass into the neck, a bottle-holder depending from the ring and inwardly-extending arms on the ring suitably spaced to permit handling, substantially as described.

10. A fire-extinguisher comprising a tank provided with a neck, a ring adapted to pass into said neck, a bottle-holder depending from the ring, and inwardly-extending arms carried by the ring, substantially as described.

CHAS. A. MILLER.

Witnesses:
T. F. BOURNE,
M. HOLLINGSHEAD.